AMENDMENTS TO THE SPECIFICATION

Page 7, delete the second full paragraph and insert the following paragraph:

The electrode for electric discharge surface treatment according to the present invention is a green compact made by ~~compression~~ molding metallic powders or metallic compound powders and used for electric discharge surface treatment in which a pulsed electric discharge is generated between the electrode and a work in a dielectric fluid to form by the electric discharge energy on the surface of the work a coat of a material of the electrode or of a substance that is generated by a reaction of the electrode due to the electric discharge energy, wherein the electrode contains 40 volume % or more metallic material that is not carbonized or is hard to be carbonized.

Page 8, delete the first full paragraph and insert the following paragraph:

Fig. 1 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of a manufacturing method of the electrode according to a first embodiment of the present invention; Fig. 2 is a characteristic plot that indicates relationship between a coat thickness and a volume percentage~~weight percentage~~ of Co; Fig. 3 is a plot of voltage and current waveforms at the electrode; Fig. 4 is a characteristic line plot that indicates relationship between the coat thickness and a processing time; Fig. 5 is a photograph of an example of the coat that is formed when the electrode contains 70 volume % of Co; Fig. 6 is a schematic of a configuration of an example of an apparatus for electric discharge surface treatment according to the present invention; Fig. 7 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of a manufacturing method of the electrode according to a

second embodiment of the present invention; Fig. 8 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of a manufacturing method of the electrode according to a third embodiment of the present invention; Fig. 9 is a characteristic plot that indicates relationship between a coat thickness and a volume percentage~~weight percentage~~ of Co; Fig. 10 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of manufacturing method of the electrode according to a fourth embodiment of the present invention; Fig. 11 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of manufacturing method of the electrode according to a fifth embodiment of the present invention; Fig. 12 is a schematic of a configuration of an example of an apparatus for electric discharge surface treatment according to the present invention; Fig. 13 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of manufacturing method of the electrode according to a sixth embodiment of the present invention; and Fig. 14 is an explanatory diagram that indicates a transition of materials applied to aircraft engines.

Page 12, delete the first full paragraph and insert the following paragraph:

When the coat is formed under such pulse condition, the thickness of the coat formed on the work varies with the volume percentage~~weight percentage~~ of Co contained in the electrode. As shown in Fig. 2, the coat thickness, which is about 10 μm when the Co content is low, starts becoming gradually thicker at a point at which the Co content is about 30 volume %, and becomes up to nearly 10000 μm at a point at which the Co content exceeds 50 volume %.

Page 12, delete the last full paragraph and insert the following paragraph:

This fact is described in further detail. When the coat is formed on the work based on the above condition, if the Co content in the electrode is 0%, in other words, if the Cr_3C_2 (chromium carbide) content is 100 volume %~~100 weight %~~, the thickness of the coat that can be formed is limited to about 10 μm and the coat cannot be made thicker. Moreover, a relation between the thickness of the coat and the processing time when the electrode does not contain the material that is hard to form a carbide is illustrated in Fig. 4. As shown in Fig. 4, in an early stage of the processing, the coat grows thicker as the processing time increases; however, the thickness of the coat does not increase after a certain point (approximately 5 min/cm^2). After such point, the coat thickness does not grow for a while, but if the processing is continued until a certain time (about 20 min/cm^2), the coat thickness starts decreasing this time, and finally the height of the coat becomes minus, or hollow. However, the coat exists even though the coat looks hollow and the thickness itself is about 10 μm, which is almost the same as when the coat is processed in an appropriate time. Consequently, the processing time between 5 minutes to 20 minutes is considered to be the appropriate time.

Page 18, delete the second full paragraph and insert the following paragraph:

Fig. 7 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of a manufacturing method of the electrode according to a second embodiment of the present invention. While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be

manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention. As shown in Fig. 7, a mixture of a Ti (titanium) powder 701 and a Co (cobalt) powder 702 is filled in a space between an upper punch 703 of a mold, a lower punch 704 of the mold, and a die 705 of the mold. A green compact is formed by compression molding the mixture. The green compact thus obtained is used as an electrode for electric discharge in the electric discharge surface machining. The pressure to compression mold the powder was set to about 100 MPa and the heating temperature was changed in a range of 400°C to 800°C during manufacturing the electrode.

Page 19, delete the second full paragraph and insert the following paragraph:

In the second embodiment, the condition of the formation of the coat when the Co (cobalt) powder content in the electrode was changed by gradually increasing the amount from a state that the percentage of Ti (titanium) powder content in the electrode is 100 volume %, or equivalently, Co in the electrode is 0 volume %, was examined in a manner similar to that in the

first embodiment. The powder of Ti (titanium) having a grain diameter of the order of 3 μm to 4 μm, and a powder of Co (cobalt) having grain diameter~~a grain diameter grain diameter~~ of the order of 4 μm to 6 μm were used. Because Ti (titanium) is a viscous material and is difficult to be ground into a fine powder, the Ti powder was obtained by ball-milling a brittle material of TiH_2 (titanium hydride) into a powder having a grain diameter of the order of 3 μm to 4 μm, by compression molding the powder, and then by making the compression molded powder release hydrogen by heating.

Page 21, after line 2, insert the following paragraph:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.

Page 21, delete the last full paragraph and insert the following paragraph:

In the third embodiment, how a coat was formed when the Co (cobalt) powder content in the electrode was changed by gradually increasing the amount from a state that the percentage of Cr (chromium) powder content in the electrode is 100 volume %, or equivalently, Co in the electrode is 0 volume %, was examined in a manner similar to that in the first embodiment. The powder of Cr (chromium) having a grain diameter of the order of 3 μm to 4 μm, and a powder of Co (cobalt) having grain diameter~~a grain diameter grain diameter~~ of the order of 4 μm to 6 μm were used.

Page 24, before the heading Fourth Embodiment, insert the following paragraph:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.

Page 27, after the first full paragraph, insert the following paragraph:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.

Page 27, delete the second full paragraph and insert the following paragraph:

Fig. 11 illustrates a cross-section of an electrode for electric discharge surface treatment and a concept of manufacturing method of the electrode according to a fifth embodiment of the present invention. As shown in Fig. 11, a powder of Stellite alloy (alloy of Co, Cr, Ni) 1101 is filled in a space between an upper punch 1103 of a mold, a lower punch 1104 of the mold, and a die 1105 of the mold. And a green compact is formed by compression molding the alloy powder~~the mixture~~. The green compact thus obtained is used as an electrode for electric discharge in electric discharge surface machining.

Page 27, delete the last full paragraph and insert the following paragraph:

The Stellite alloy powder 1101~~The powder 1101~~ is a powdered alloy that is made by mixing Co (cobalt), Cr (chromium), Ni (nickel), and the like in a specified proportion. Methods of powdering include, for example, atomization or powdering the alloy with a mill and the like. By either method, each grain in the powder becomes an alloy (Stellite in Fig. 11). The alloy powder is compression molded with the die 1105 and punches 1103, 1104. And then, to enhance strength of the electrode, heating treatment may be carried out depending on a case. The alloy powder that was compounded in a proportion of "Cr (chromium) 20 weight %, Ni (nickel) 10 weight %, W (tungsten) 15 weight %, Co (cobalt) for the rest" was used here. A volume percentage of Co (cobalt) in this case was higher than 40%.

Page 34, insert the following paragraph after the first full paragraph:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the

methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.

Page 36, insert the following paragraph before Seventh Embodiment:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.

Page 38, before the heading Industrial Applicability, insert the following paragraph:

While a case in which an electrode is formed by compression molding powers with a press has been explained, a method of manufacturing the electrode is not limited to this case. As long as the electrode manufactured is formed powder, the electrode may be manufactured by methods other than compression molding. The other methods to manufacture the electrode include slip-casting, Metal Injection Molding (MIM), and spraying or jetting nanopowders. In

the slip-casting, powders are dispersed in a solvent to make a suspension, and the suspension is poured into a porous cast, such as a plaster cast, to remove the solvent. In the MIM, powders are mixed with a binder and jet into a mold. In spraying, powders are heated and the powders heated are sprayed to make a state in which the powders are partly combined with each other. Even though there are various different methods to manufacture the electrode, a purpose of each of the methods is to form powders. If a desirable combining state of the powders is obtained in the electrode, the electrode may be applied to the present invention.